All of the limitations of original claim 5 has been incorporated into claim 1, and claim 5 has been cancelled accordingly. The dependencies of claims 6 and 8 have been amended in view of the cancellation of claim 5.

New claim 36 includes the elements and limitations of previous claims 1 and 3. New claim 37 includes the elements and limitations of previous claims 1 and 4. New claim 38 includes the elements and limitations of previous claims 1 and 13. New claims 39 and 40 correspond to original claims 14 and 15 respectively. New claim 41 includes the elements and limitations of previous claims 1 and 19.

35 USC §112

Celsius temperatures have been removed from the claims to overcome the §112 rejections. The metric units in parentheses in original claim 18 have also been removed.

35 USC §§ 102(b) & 103(a)

Claims 1-20 were rejected under 35 USC § 102(b) or §103(a) over U.S. patent 5,837,052 to Oates *et al.* ("Oates"). Looking first at Oates, there is described a process and apparatus for producing a cement clinker having a minor amount of pozzolanic coal ash. The process comprises (a) producing cement clinker, at an elevated temperature, from cement clinker raw ingredients in a cement kiln, (b) feeding the hot cement clinker from step (a) into a cooler, (c) feeding a pozzolanic coal ash having a contaminant into contact with the hot cement clinker at an elevated temperature in the cooler and liberating the contaminant from the coal ash at the elevated temperature in the presence of the hot cement clinker in the cooler, and (d) recovering a cooled cement clinker containing the flyash free of the contaminant.

There are number of fundamental differences between the Applicants' process and the process of Oates. For example, the Applicants' process can treat 100% fly ash throughput whereas the Oates process is designed as a process addition to cement manufacturing at a fly ash addition rate of 1% to 40% of the clinker-fly ash mixture. The Applicants' process does not require intergrinding fly ash with cement clinker whereas the Oates process does. The grinding of the fly ash would break up some of the fly ash spheres that makes it valuable for pumping, flow, and water reducing properties in concrete. The Applicants' process produces a marketable valuable commodity that is used in ready mixed concrete production (Reference ASTM C-618) and called Class C or Class F fly ash, whereas the Oates process produces a marketable valuable commodity known as Blended Hydraulic Cement (Reference ASTM C-595).

Referring now to independent claims 1, 36, 37, 38 and 41, each of these claims includes an element that is not shown or suggested in Oates. Amended claim 1 states that heat is recovered from the flowing air after the fly ash has been exposed to the flowing air. In contrast, Oates merely discusses the recovery of fine particles from the air exiting the Oates apparatus (see column 6, lines 67-61 of Oates). The heat recovered in the Applicants' process can be used to preheat fly ash to be treated subsequently and thereby increase the speeds at which the fly ash can reach desirable temperatures of at least 900°F (see, e.g., page 8, lines 12-14 of the present specification.)

New claim 36 states that in process ash temperatures of the fly ash are measured and used to time the removal of fly ash from the process and the introduction of a second amount of fly ash into the process. Oates does not teach or suggest in

process monitoring of flyash temperatures. By monitoring when the flyash reaches desirable temperatures of at least 900°F, the Applicants' process assures that adequate ammonia removal from the flyash occurs without slowing process throughput due to overly long flyash residence times in the process.

New claim 37 states that the fly ash is preheated to a temperature of at least 300°F. Oates does not teach or suggest preheating the flyash before introduction to the clinker. By preheating the flyash, the Applicants' process increases the speed at which the flyash can reach desirable temperatures of at least 900°F (see, e.g., page 8, lines 12-14 of the present specification.)

New claim 38 states that heat is recovered from the fly ash after the fly ash has been exposed to the flowing air. In contrast, Oates merely discusses the recovery of fine particles from the air exiting the Oates apparatus (see column 6, lines 67-61 of Oates). The heat recovered in the Applicants' process can be used to preheat fly ash to be treated subsequently and thereby increase the speeds at which the fly ash can reach desirable temperatures of at least 900°F (see, e.g., page 8, lines 12-14 of the present specification.)

New claim 41 states that an in process ash temperature of the fly ash is measured when the fly ash is exposed to the flowing air, and the flow rate of the flowing air is controlled in response to the measured in process fly ash temperature. Oates mentions nothing about control of the cooling air from air jets 46. By controlling air flow, the Applicants' process can increase the speed at which the fly ash can reach desirable temperatures of at least 900°F.

Therefore, it is respectfully submitted that independent claims 1, 36, 37, 38 and 41 (and the claims that depend thereon) are patentable over U.S. patent 5,837,052 to Oates *et al.* Each of these independent claims recites a feature not shown in Oates that provides advantages to the Applicants' process. Accordingly, it is believed that the claims are in condition for allowance.

Conclusion

It is believed that the entire application has been placed in condition for allowance. Having paid for 35 claims and 3 independent claims, a fee of $168 as shown on the attached fee sheet is due for the new claims. Please charge the fees to deposit account 17-0055. If other fees are needed, please charge them to deposit account 17-0055.

Respectfully submitted,

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Version with markings to show changes made

1. (Amended) A method for reducing the amount of ammonia compounds affixed to fly ash, the method comprising:

providing an amount of fly ash, at least a portion of the amount of fly ash comprising particulates having ammonia compounds affixed to the particulates; [and]

exposing the amount of fly ash to flowing air having a temperature of at least 1,500°F [(815°C).]; and

recovering heat from the flowing air after the fly ash has been exposed to the flowing air.

2. (Amended) The method of claim 1 wherein:

the fly ash is maintained in the flowing air until the fly ash reaches a temperature of at least 900°F [(482°C)].

3. (Amended) The method of claim 1 further comprising:

measuring an in process ash temperature of the fly ash when the fly ash is exposed to the flowing air;

removing at least a portion of the fly ash being exposed to the flowing air when the measured in process ash temperature reaches at least 900°F [(482°C)];

thereafter providing a second amount of fly ash, at least a portion of the second amount of fly ash comprising particulates having ammonia compounds affixed to the particulates; and

thereafter exposing the second amount of fly ash to flowing air having a temperature of at least 1,500°F [(815°C)].

4. (Amended) The method of claim 1 further comprising:

preheating the fly ash to a temperature of at least 300°F [(148°C)] before exposing the fly ash to the flowing air.

5. (Canceled)

6. (Amended) The method of claim [5] 1 further comprising:

using the heat recovered from the flowing air to preheat a second amount of fly ash, at least a portion of the second amount of fly ash comprising particulates having ammonia compounds affixed to the particulates; and

thereafter exposing the second amount of fly ash to flowing air having a temperature of at least 1,500°F [(815°C)].

7. (Amended) The method of claim 6 wherein:

the second amount of fly ash is preheated to a temperature of at least 300°F [(148°C)].

8. (Amended) The method of claim [5] 1 further comprising:

removing particulate material from the flowing air after heat has been recovered from the flowing air.

9. (Amended) The method of claim 8 further comprising:

maintaining the flowing air above 400°F [(204°C)] when particulate material is removed from the flowing air.

11. (Amended) The method of claim 10 further comprising:

using the heat recovered from the particulate material to preheat a second amount of fly ash, at least a portion of the second amount of fly ash comprising particulates having ammonia compounds affixed to the particulates; and

thereafter exposing the second amount of fly ash to flowing air having a temperature of at least 1,500°F [(815°C)].

12. (Amended) The method of claim 11 wherein:

the second amount of fly ash is preheated to a temperature of at least 300°F [(148°C)].

14. (Amended) The method of claim 13 further comprising:

using the heat recovered from the fly ash to preheat a second amount of fly ash, at least a portion of the second amount of fly ash comprising particulates having ammonia compounds affixed to the particulates; and

thereafter exposing the second amount of fly ash to flowing air having a temperature of at least 1,500°F [(815°C)].

15. (Amended) The method of claim 14 wherein:

the second amount of fly ash is preheated to a temperature of at least 300°F [(148°C)].

18. (Amended) The method of claim 16 wherein:

the flowing air is passed through the openings at greater than 0 to about 10 cubic feet [(0.28 cubic meters)] per minute.

20. (Canceled)